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Protection and management of land resources: soil loss

Progress report on the preparations for the FAO/Netherlands Conference on Agriculture and Environment

Report of the Secretary-General of the Conference

I. BACKGROUND

1. The 25th FAO Conference adopted a major resolution on FAO activities related to Sustainable Development (C 3/9) in November 1989. The Conference considered that "insufficient attention to the environmental impact of agricultural policies, priorities and practices has been causing extensive environmental damage"; underlined that "FAO should play a leading role as the centre of excellence within the United Nations System in several sub-sectors related to environment and sustainable development", and decided that the Organization should "intensify its interdisciplinary work to ensure the integration of environmental considerations in all relevant FAO activities", "give higher priority to the prevention of environmental degradation which affects agriculture, fisheries and forestry", "strengthen its co-operation with other organizations of the United Nations System in these fields"; and "collaborate fully in the preparations for the 1992 United Nations Conference on Environment and Development".

2. In response to this resolution and among other initiatives, FAO, with the co-operation and support of the Government of the Netherlands, is organizing an International Conference on Agriculture and the Environment to be held in 's-Hertogenbosch, the Netherlands, from 15-19 April 1991. The Conference will be a platform for senior experts from around the world to review and reassess various strategies and tools for sustainable agricultural and rural development in the developing regions. A special effort will be made to invite people with responsibilities in planning and management in the area of agricultural development and/or environmental protection. Participants will be invited from developing and developed countries and United Nations institutions concerned with the subject, as well as international NGOs in the field of agricultural development and environment protection.

3. At its first substantive meeting held in Nairobi from 6-31 August, the Preparatory Committee of UNCED was informed of this initiative and in its decision 1/15 soil loss and desertification and drought 1/:

(i) requested the Secretary-General, United Nations Conference on Environment and Development to keep the Preparatory Committee informed on the preparations for and the outcome of the FAO/Netherlands Technical Conference on Agriculture and Environment - Strategies and Tools for Sustainable Agricultural Development, to be held in April 1991; and

(ii) invited the Food and Agriculture Organization of the United Nations to include in its preparations for a strategy for sustainable agriculture, measures to avoid and combat land degradation, with due consideration to the wide range of socio-economic and interdisciplinary issues involved and to report on the progress made to the Preparatory Committee at its second session through the Secretary-General of the United Nations Conference on Environment and Development."

4. The progress report on the preparation of the FAO/Netherlands Conference is presented below. In preparing this report, the UNCED Secretariat worked in close collaboration with FAO. An FAO report on the aspects related to land degradation is enclosed as an annex to this report.

1/ Report of the Preparatory Committee for the United Nations Conference on Environment and Development, General Assembly A/45/46 Decisions 1/15: Soil loss and desertification and drought; I Soil loss, paragraphs (b) and (c).

II. PREPARATIONS FOR THE FAO/NETHERLANDS CONFERENCE ON AGRICULTURE AND ENVIRONMENT

5. Objectives and Scope of the Conference

The FAO/Netherlands Conference on Agriculture and the Environment will focus on the strategies and tools for sustainable agriculture and rural development, primarily in developing countries. The Conference will address itself to four main topics related to sustainable agricultural development: the issues and perspectives of agricultural growth and sustainability; the technological options and research requirements; strategies for sustainable agriculture development in areas with different resource endowments; and the instruments and tools for implementation. The results of the Conference will be reflected in a Strategy and Agenda for Action for Sustainable Agriculture and Rural Development.

6. The Preparatory Process

The preparations for the Conference draw on the guidance received on the subject from Governments at recent FAO intergovernmental meetings including the FAO Regional Conferences, the FAO Council and Conference, as well as various related FAO technical meetings. In addition, due account is also being taken of the outcome of other consultations undertaken by UNEP, WMO, WHO and NGOs.

A series of background documents are being prepared for the FAO/Netherlands which also relates to the objectives of UNCED. These documents deal with the sustainability and environment protection aspects of the following topics: land and water development for agriculture; crop production and protection; livestock production and health; farming, processing and marketing systems; and social and institutional aspects. Additional background papers will be made available to the Conference, covering relevant issues of population, climate change, rural energy and nutrition.

Four regional documents on Africa, Asia and the Pacific, Africa and Latin America and the Caribbean are being prepared concurrently with the help of the FAO Regional Offices and consultants from these regions.

These background documents and regional documents are being used in the preparation of the main documents on the four main topics addressed by the Conference, as mentioned earlier in this report.

A Preparatory Meeting of experts from various fields and regions was held in FAO Headquarters in Rome from 8-12 October 1990, to review the first drafts of the above documents. The meeting was also attended by representatives of the Netherlands Government, the UNCED Secretariat, UNEP, WMO, WFP and IFAD.

The preparations were reported in the ninety-eighth session of the FAO Council in November 1990, which endorses and supports the Conference.

7. The Conference

The Conference will be held in 's-Hertogenbosch, the Netherlands, from 15-19 April 1991. The first two days will be devoted to the presentation and discussion of the main documents on the four topics of the Conference (issues, technology, strategies and instruments and tools). Meetings of regional groups will be held on the third day. The Conference will then discuss and adopt a Global Strategy and Agenda for Action for Sustainable Agriculture and Rural Development.

III. IMPLICATIONS OF THE FAO/NETHERLANDS CONFERENCE FOR THE PREPARATORY PROCESS

8. The outcome of the FAO/Netherlands Conference will be of great import for the preparatory process. In essence, the resulting Strategy and Agenda for Action for Sustainable Agriculture and Rural Development will not only provide the environmental and developmental approaches but also the technical elements to guide the international community in its work on agriculture and more broadly on production systems and land resources in general. This will shape programmes for the future, including those discussed by the preparatory process.

9. Therefore, the Preparatory Committee may wish to wait till the outputs of the FAO/Netherlands Conference are available in late April 1991, before giving the final shape and direction to its own programme of work. During the present session, the Preparatory Committee may wish to consider the manner in which these outputs will be used by the preparatory process, and how action in this general area could be strengthened and given greater impetus.

Annex

FAO/NETHERLANDS Conference on Agriculture and the Environment

's-Hertogenbosch, the Netherlands, 15-19 April 1991

Progress report on preparations related to land degradation

REPORT BY THE FOOD AND AGRICULTURE ORGANIZATION

1. At its first substantive session (Nairobi, 6-31 August 1990), the Preparatory Committee of the United Nations Conference on Environment and Development "invited the Food and Agriculture Organization of the United Nations to include in its preparations for a strategy for sustainable agriculture, measures to avoid and combat land degradation, with due consideration to the wide range of socio-economic and interdisciplinary issues involved and to report on the progress made to the Preparatory Committee at its second session through the Secretary-General of the United Nations Conference on Environment and Development".

2. Land degradation, where it occurs, is often caused by unsustainable agricultural development and inappropriate agricultural management practices. Conversely, agriculture is the sector most affected by land degradation, including land degradation from non-agricultural sources, e.g. industrial and urban wastes. It is therefore logical that this problem be given particular attention by the FAO/Netherlands Conference on Agriculture and the Environment.

3. The purpose of that Conference is to formulate strategies and identify instruments and tools for sustainable agriculture and rural development. The Conference will therefore address the basic causes of development/environment conflicts in agriculture, rather than their symptoms such as those expressed in diverse forms of land degradation. The Conference will discuss ways and means for taking practical preventive or remedial action aiming at avoiding these conflicts and achieving sustainable development in agriculture.

4. The preparatory work of the FAO/Netherlands Conference is guided by the following definition of sustainable development, as adopted by the FAO Council in 1988:

> "Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable."

5. In line with this definition, the relevant problems of land degradation will be addressed under different angles and at several levels by the Conference:

(i) in a major background document entitled "Sustainable Development and Management of Land and Water Resources";

(ii) in four regional documents submitted for discussion by regional groups during the Conference: each of these documents includes sections which examine the land resource base and the specific problems of land degradation in the region concerned;

(iii) under each of the main agenda items of the Conference (issues and perspectives; technological options; strategies for sustainable agricultural development in areas with different resource endowments; instruments and tools);

(iv) in a draft strategy and agenda for action for sustainable agriculture and rural development which will be reviewed, further elaborated and proposed for adoption by the Conference.

6. As regards land degradation, the main points submitted for the consideration of the Conference are the following:

(i) Besides the most apparent forms of land degradation which are well known (soil erosion, soil salinization, water-logging) and for which technological solutions exist, there are more complex and insidious forms of land degradation which require further research and technology development; these are the losses of soil fertility (including its chemical, physical and biological aspects); the effects of agro-chemicals, in particular their over-use, and those of pollutants and other wastes; the relationships between land degradation and drought in the process of desertification; and the land degradation hazards related to a potential climate change.

(ii) Land degradation may occur in both extensive and intensive agricultural systems whenever the maintenance of the land resources on a sustainable basis is neglected and particularly where production pressures extend beyond the land's carrying capacity. By the year 2000, if present trends of land degradation continue, the annual loss will be 10 million hectares (or 0.7 per cent of the area presently cultivated). The root causes of land degradation are very diverse and can be associated with under-development and poverty, or misdirected development and technological change, or "over-development" with excessive use of external inputs. Inappropriate land use policies, price structures and land tenure systems, as well as unfavourable market conditions may induce land degradation in various forms. The solution to the problems of deterioration and depletion of agricultural lands therefore requires an integrated approach by examining the sustainability of the overall process of agricultural production in the broader context of rural development.

(iii) A major challenge facing mankind in the twenty-first century is to produce sustainably the basic necessities of food, fibre, fuel and other raw materials from about 0.15 ha of arable land per caput (or less if degradation continues). Therefore, with the exception of a few countries where horizontal expansion of agriculture is still feasible, intensification of agricultural production is the sole alternative in the face of the growing demands of populations. Intensification of agriculture on the most favourable lands is also necessary to relieve the pressure on agricultural frontiers and return to more appropriate forms of land use on marginal lands. Such intensification appears possible as the arable land area per caput could be as low as 0.11 ha to meet populations' basic needs sustainably if a moderate level of management and technical inputs is used. Moreover, a quarter of the world's cropland is suitable for intensive use through adoption of high or specialized technologies. Thus, the main issues are (a) where and how to proceed with the intensification process in a sustainable manner (i.e. "environmentally sound, technologically appropriate, socially acceptable and economically viable" in line with the FAO definition), (b) where and how to maintain or develop sustainably less intensive forms of land use, ranging from extensive production systems to fully protected areas.

(iv) Several guiding principles emerge from the preparatory process of the FAO/Netherlands Conference on Agriculture and the Environment which should influence the development of sustainable forms of land use. The first concerns the need for increased efficiency in using renewable resources and biological processes, reducing wastage in the utilization of external inputs and non-renewable resources and increasing not only yields but also farmers' incomes. The second relates to risk avoidance and improved resilience in the production systems so as to reduce the vulnerability of the farming systems to the irregularities of weather, to disease and pest outbreaks and to market fluctuations, and to ensure appropriate use of agricultural technology. This may imply achieving a larger degree of self-reliance at the farm level, avoiding over-dependence of the farmer on one type of production (e.g. monoculture) or on external supplies. It may also imply a wider diversification of farming systems. The third guiding principle would call for achieving more equity by reducing the considerable social and economic disparities which exist among people living in rural areas, and between them and urban dwellers and, more generally, in the terms of trade for agricultural products.

(v) The Conference will examine how these guiding principles may be applied to various options in achieving sustainability in different production systems: intensive specialized systems, intensive diversified systems, farming associated with non-farm activities, extensive systems, and subsistence agriculture. It will also consider, among the strategic options, those which relate to more

fundamental changes in the production systems: rehabilitation and upgrading of the land resource base to adapt to growing demands (land reclamation and land improvement works): adjustments in the trade and consumption patterns which may facilitate more sustainable forms of land use; changes in the land tenure systems which may contribute to the elimination of unsustainable farming systems and agricultural practices.

(vi) The consideration of various sustainable options is particularly complex in a field as diverse in space and in time as agriculture. The choice among the options depends on local conditions, both natural and socio-economic, as well as broad macro-economic factors. The Conference will not seek solutions to the several broader issues which are essential prerequisites to the achievement of sustainability in the agricultural sector as well as in other sectors. These include population control, access to technologies, international trade adjustments and debt alleviation. The Conference should, however, identify those aspects of sustainable agriculture - including land degradation control - which are closely linked with these broader issues extending beyond the agricultural sector and calling for further consideration in the appropriate fora.

(vii) In spite of the necessary diversity of action needed at local, national and global level, the FAO/Netherlands Conference is expected to determine a common process by which action can be taken on priority areas in an integrated manner. In so doing, the Conference should contribute to the formulation of the UNCED agenda for action as far as the agricultural sector is concerned. This common process, or agenda for action, in the field of agriculture should include several elements of assessment, reformulation of policies and plans, and specific programme frameworks. The specific programme frameworks would concentrate on critical resources (human, land, water, biological resources), on critical factors (fertility, pest control) and on critical zones (per-humid/humid tropics, arid zones, mountain areas, coastal areas) as indicated below.

(viii) The first element envisaged under the draft agenda for action is a "sustainability assessment of the agricultural sector" with appropriate criteria and methodologies, followed by the development of data bases, accounting and monitoring systems. This should not be limited to environmental impact assessments of present agriculture, ongoing policies, future plans and projects, but encompass other aspects of sustainability including the socio-economic ones.

(ix) The "sustainability assessment" of the agricultural sector, along with broader considerations of an inter-sectoral and macro-economic nature, should serve as a basis for appropriate adjustments in current agricultural policies and plans and the formulation of long-term strategies and programmes with a view to managing the

transition towards sustainable forms of agriculture and rural development. The Conference will examine diverse institutional mechanisms, economic and financial policy measures, regulatory policy measures, inducements and other means which may facilitate this transition. Among these, special attention will be given to measures having a bearing on land degradation such as land use planning, zoning regulations, land taxes and subsidies, land reform, etc.

(x) Whereas Governments have the major responsibility for formulating and implementing policies for sustainable agriculture, no lasting impact will be obtained without the active participation of individual farmers and rural communities. The FAO/Netherlands Conference will therefore have before it a series of proposals for sustaining rural livelihoods and community life, involving rural people in the preparation and implementation of the local components of conservation and development plans outlined below. These should be supported by communication and training programmes.

(xi) Three action programme frameworks will be considered by the Conference aiming at improving efficiency and reducing risk in the use of the three basic natural resources for sustainable agriculture: respectively land resources, water resources and genetic resources. The programme framework for land resource conservation and rehabilitation was already developed by FAO for the African Region in 1990 and may be extended with suitable adjustments to other regions. As regards water use for sustainable agriculture, a global inter-agency programme framework was also developed in 1990 under the aegis of FAO as a follow-up of the Mar del Plata Action Plan, which will deal inter alia with the relevant aspects of controlling water-logging, salinity and drainage in irrigated and rainfed agriculture. The third action programme framework should encompass both conservation and use of biological diversity for agriculture, including those aspects relevant to the use of suitable plant varieties, animal breeds, and mixes of species (e.g. agro-forestry) which can contribute to the conservation and rehabilitation of land resources in agriculture. Diverse elements regarding this programme framework are already developed and implemented by FAO in close consultation and co-operation with other institutions concerned with biodiversity (UNEP, UNESCO, IUCN, WRI).

(xii) In view of the importance of maintaining soil fertility and controlling pests for sustainable agriculture, the FAO/Netherlands Conference will pay particular attention to several action proposals in these fields. These include the further development of integrated plant nutrition systems combining different sources of soil nutrients (biological, organic and chemical); the expansion of integrated pest management programmes for both crops and livestock, and the further implementation of the International Code of Conduct on the Distribution and Use of Pesticides.

(xiii) The above elements of an agenda for action for sustainable agriculture and rural development may assume a different level of importance in various country situations and may call for the integration of different programmme elements in diverse combinations at national and local level. Co-operative activities at regional level and programmes at international level in the form of technical and financial assistance and other international action should be developed concurrently in support of national programmes. These should necessarily be focused on the individual elements of the proposed agenda for action. This closely integrated and co-ordinated approach appears essential in dealing with certain critical areas where the present and/or potential conflicts between development and environment protection are most acute. These are the arid and semi-arid tropical and sub-tropical areas; the humid and per-humid tropics; irrigated farm lands; mountain and coastal areas. For each of these critical areas - in which land degradation hazards are among the highest - the FAO/Netherlands Conference will examine in more specific terms the range of possible land uses, technologies and other measures which can ensure agricultural production and rural development on a sustainable basis.

7. This review of the ways and means by which land degradation problems will be addressed by the FAO/Netherlands Conference on Agriculture and the Environment reflects the status of the preparatory process as at 31 December 1990 and summarizes in a necessarily incomplete manner an ample documentation and detailed proposals which are in the process of finalization. Without anticipating the outcome of this Conference, which will be reported both to the FAO governing bodies and to the UNCED Preparatory Committee at its third substantive session, the views of the Preparatory Committee on the matter at its second session will be helpful to the Conference participants in addressing the complex problems of sustainable agriculture and land degradation and in ensuring that the FAO/Netherlands Conference on Agriculture and the Environment makes a major contribution to the preparation of UNCED.